



United States Steel Corporation  
Great Lakes Works  
Environmental Department  
No. 1 Quality Drive  
Ecorse, Michigan 48229

September 13, 2019

EES Case Management Unit  
Environmental and Natural Resources Div.  
U. S. Department of Justice  
Box 7611  
Washington, DC 20044-7611

Compliance Tracker (AE-17J)  
Air Enforcement and Compliance Assurance  
U. S. Environmental Protection Agency  
Region 5  
77 West Jackson Blvd.  
Chicago, IL 60604

Wilhemina McLemore  
Michigan Department of Environmental Quality  
Air Quality Division  
Cadillac Place, Suite 2-300  
3058 W. Grand Blvd – Suite 2-300  
Detroit, Michigan 48202-6058

Sir/Madam:

Re: *United States, et al. v United States Steel Corporation*  
Consent Decree 2:12-cv-304, DJ# 90-5-2-1-06476/1  
United States Steel Corporation – Great Lakes Works  
2019 1<sup>st</sup> Semi-Annual Report (January 1, 2019 through June 30, 2019)

Pursuant to Paragraph X.60. of the above-referenced Consent Decree, U. S. Steel is submitting the 2019 1<sup>st</sup> Semi-Annual Report for the above-referenced Consent Decree. Please refer to the following attachments:

Section 1 – Blast Furnace Bell Inspection  
Section 2 – Section V, VII, and VIII Compliance Updates  
Section 3 – No. 2 BOP Shop Roof Visible Emission Observations

If you have any questions regarding this matter or require additional information, please contact Alexis Piscitelli at 313-749-3900 or [apiscitelli@uss.com](mailto:apiscitelli@uss.com).



*Patricia*

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. This certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

Sincerely,



Daniel R. Brown  
General Manager  
Great Lakes Works  
United States Steel Corporation



Alexis Piscitelli  
Director, Environmental Control  
Great Lakes Works  
United States Steel Corporation

cc: David Hacker (USS)

attachments

## **Section 1**

### **B2 Quarterly Large Bell Inspection**

The large bell inspections for B2 Blast Furnace for January through June 2019 can be found at the end of this report in Appendix A. No issues were found during the inspections.

## Section 2

### Section V Compliance Update

U. S. Steel completed the final portion of the BOP Improvements during the BOP Outage in the 1<sup>st</sup> half of 2019 and submitted the completion report on July 19, 2019. Below is the list of every completed item from 2017 through the first half of 2019. U. S. Steel began the enhanced observations of the No. 2 BOP Shop Roof Monitor on August 6, 2019.

Improvement Description	Proposed Implementation Date	Actual Completion Date
Replace 25 Vessel downcomer and sections of the Dirty Gas Main including steam ring replacement. This was identified as an improvement needed by the USS team and was expedited. This work was being completed during the time the third-party study was being conducted.	November 30, 2017	November 30, 2017
Replace internal components of 10 cells including replacing collection plates, rigid discharge electrodes and associated components.* New or modified flow control devices provided to balance flow across the face of the precipitators. * - U. S. Steel replaced internal components for all (24) cells.	December 31, 2018	October 31, 2018
Replace the traps on the steam line to the Primary Steam injection system	December 31, 2018	December 18, 2018
Install #1 Baghouse System pressure and temperature sensors	December 31, 2018	September 1, 2018
Complete patch repairs of deficiencies identified during #1 Baghouse ductwork inspection	December 31, 2018	December 4, 2018
Remove build-up and repair desulf hood and ductwork	December 31, 2018	August 15, 2018
Repair main and emergency hot metal transfer hoods	December 31, 2018	August 31, 2018
Modify connection between desulf hoods and stationary duct	December 31, 2018	December 10, 2018
Improve compressed air to desulf hood lance hole	December 31, 2018	December 10, 2018
Complete shakedown and installation of Primary System monitoring and control equipment	June 30, 2019	June 19, 2019

## **Section VII Compliance Update**

On April 15, 2019, this Consent Decree was modified to update the Supplemental Environmental Project for Replacement of Lighting Ballasts and Light Bulbs in Public Schools to include Public Recreation Centers as well as a larger targeted area for these replacements.

Upon the execution of the Consent Decree modification, U. S. Steel and Elevate Energy began efforts to restart the project. Elevate Energy began the RFP process in August, and work is expected to begin in the fourth quarter of this year. The project is on track to meet the new deadline of March 30, 2020 agreed to in the April 15, 2019 extension.

## **Section VIII Compliance Update**

U. S. Steel removed and replaced three PCB Transformers in the 1<sup>st</sup> Quarter of 2019 (Transformers 563, 564, and 557). Transformers 563 and 564 are located in the No. 10 Motor Room and Transformer 557 is located in B Building at the GLW Main Plant. Transformer 563 was removed and replaced on February 27, 2019. Transformers 564 and 557 were removed and replaced on March 21, 2019. All 3 replacement transformers were manufactured by Sunbelt, and Crown ERAM handled the removal and replacement work for all three. The cost for the removal and replacement of Transformers 563 and 564 totaled \$260,318. The cost for the removal and replacement of Transformer 557 totaled \$126,750. The total cost for the entire project, including the work from October 2018, was \$515,168 surpassing the \$400,000 requirement. All required documentation can be found at the end of this report in Appendix B.

## **Section 3**

### **No. 2 BOP Roof Monitor Visible Emission Observations**

All field sheets used during certified Visible Emission Observations from January 2019 through June 2019 can be found at the end of this report in Appendix C.

Below you will find the descriptions of any deviation from opacity standards for the No. 2 BOP Shop Roof and any steps taken, or to be taken, to prevent or minimize such deviations.

#### **January 30, 2019**

On January 30, 2019, GLW incurred three 3-minute average opacity readings at the BOP Shop Roof Monitor of 26.25% from 1:30 pm to 1:33 pm, 75.8% from 1:45 pm to 1:48 pm, and 30.5% 1:49 to 1:51 pm.

##### **Incident Cause**

From approximately 1:30 pm to 1:33 pm, excess emissions were observed escaping from the west end of the No. 2 BOP Roof during the end of an oxygen blow.

From 1:45 pm to 1:51 pm, excess emissions were observed exiting from the center and east sections of the BOP Shop roof. 25 Vessel was charged with hot metal from 1:43 pm to 1:49 pm.

##### **Corrective Actions**

It is suspected that the extremely cold temperatures had an adverse effect on the primary draft off 26 Vessel. These abnormal emissions occurred at the very end of the blow on 26 Vessel.

During the charge on 25 Vessel, the craneman charged the heat very slowly (6 minutes) due to low visibility from the significant amount of steam present due to the abnormally low freezing temperatures. The primary louvres were switched to 25 Vessel to help remove the steam which allowed the craneman to pour safely. During this time a breakdown in communication occurred. 26 Vessel took over secondary controls to begin tapping its heat under the impression that 25 Vessel no longer needed the secondary controls. Therefore, the charge on 25 Vessel did not have adequate capture and resulted in abnormal emissions. All vessel operators were re-contacted on the proper procedures for charging and tapping controls.

#### **April 24, 2019**

On April 24, 2019, GLW incurred one 3-minute average opacity reading at the BOP Shop Roof Monitor of 23.75% from 2:29 to 2:31 pm.

##### **Incident Cause**

The certified observer reported that two distinct sources of emissions were overlapping during their read. One source was the BOP Shop roof, but the other was coming from outside of the building and rising up the south side of the BOP Shop. Upon investigation, it is suspected emissions from the Vacuum Degasser

during a vessel wash one of the distinct sources of emissions that lead to the opacity exceedance. The blow on 25 Vessel had completed at 2:29 pm and emissions were observed from the BOP Shop roof from 2:28 to 2:39 pm. The Vacuum Degasser began a vessel wash at 2:15 and finished at 2:39 pm, coinciding with the observed emissions.

#### **Corrective Actions**

GLW did find and repair small leaks in the 25 Vessel boiler door that likely was a source of opacity at the BOP Roof. Degasser Vessel washes do not occur regularly, and typically do not cause visible emissions. Each event on its own likely would have been in compliance had they been read separately.



## **Appendix A - B2 Quarterly Bell Inspections**



## B2 Quarterly Visual Inspection of Large Bell

Required to be Conducted every Quarter in Accordance with USEPA Consent Order

Conduct Visual Inspection of Large Bell, Circle Yes or No

- |   |   |    |
|---|---|----|
| Is the large bell free of visible holes?  | <input checked="" type="checkbox"/> Yes | No |
| Is the large bell free of visible gouges? | <input checked="" type="checkbox"/> Yes | No |
| Is the large bell free of visible cracks? | <input checked="" type="checkbox"/> Yes | No |
| Is the large bell free of excessive wear? | <input checked="" type="checkbox"/> Yes | No |
| Is the large bell seated properly?        | <input checked="" type="checkbox"/> Yes | No |

If any Area above is marked No, Describe the Condition


For Conditions Described Above, Describe Corrective Action Taken and Timing of Corrective Action


Name of Inspector Izack Harvey

Date of Inspection 1-5-19

Signature of Inspector Izack Harvey

Signature of Area Manager \_\_\_\_\_



## B2 Quarterly Visual Inspection of Large Bell

Required to be Conducted every Quarter in Accordance with USEPA Consent Order

Conduct Visual Inspection of Large Bell, Circle Yes or No

Is the large bell free of visible holes?

Yes

No

Is the large bell free of visible gouges?

Yes

No

Is the large bell free of visible cracks?

Yes

No

Is the large bell free of excessive wear?

Yes

No

Is the large bell seated properly?

Yes

No

If any Area above is marked No, Describe the Condition


For Conditions Described Above, Describe Corrective Action Taken and Timing of Corrective Action


Name of Inspector Jack Hyrum

Date of Inspection 4-9

Signature of Inspector [Signature]

Signature of Area Manager \_\_\_\_\_



## **Appendix B – PCB Transformer Removal Information**



**Transformers to replace removed PCB transformers February and March 2019**

Manufacturer	Serial Number	Oil Type	Gallons	IMP	kVA	Voltage	Replacing			
SUNBELT	4497833707	BETA	464	5.5	2000	6900/480	10 Motor Room #563			
SUNBELT	4497863707	BETA	464	5.4	2000	6900/480	10 Motor Room #564			
SUNBELT	4497843707	BETA	464	5.6	2000	6900/480	B building anneal #557			
<b>PCB Transformers removed February and March 2019</b>										
USS ID #	Serial #	Oil Type	Gallons	kVA	Volts	Location	Manifest	Kilograms	Date	Cost
563	W - 3779699	INERTEEN	866	2000.0	6,600/440	#10 motor room, first floor, north wall, center of bldg.	oil - 001775078JL Removal 001775078JK	11297	2/27/2019	\$260,318
564	W - 5061710	INERTEEN	866	2000.0	6,600/440	#10 motor room, first floor, north wall, center of bldg.	oil - 012675720FLE Removal - 012675720FLE	11251	3/21/2019	
557	W - YDR80951	INERTEEN	320	2000.0	6,900/480	bldg. "B", north wall col. 52 annealing	oil - 012675719FLE Removal 012675719FLE	5311	3/21/2019	\$126,750



2019 - #10 Motor Room PCB – Emerald  
Transformer LLC

Form Approved, OMB No. 2050-0039

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

GENERATOR	1. Generator ID Number <b>M-K 458 244 024</b>	2. Page 1 of	3. Emergency Response Phone <b>512.748.2011</b>	4. Manifest Tracking Number <b>001775078 JJK</b>
	5. Generator's Name and Mailing Address <b>UP STEEL - GREAT LAKES WORKS 1 QUALITY DRIVE EUGENE MI 48220</b>			Generator's Site Address (if different than mailing address)
6. Transporter 1 Company Name <b>PRO-LOGISTICS TRAILER RENTAL, LLC</b>		U.S. EPA ID Number <b>FLR200158403</b>		
7. Transporter 2 Company Name		U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>EMERALD MOTOR ROOM PCB - 10000 N. 200 E. - EUGENE, MI 48220</b>		U.S. EPA ID Number <b>OKO 926975399</b>		
9a. HM		9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) <b>1. W2215, POLYCHLORINATED BIPHENYL, LIQUID X 2. 9 DOT 10000 X 3. 9 DOT 10000 4.</b>		10. Containers No.      Type <b>001 CM 06/09 K 003 TP 555 K</b>
				11. Total Quantity 12. Unit Wt/Vol. 13. Waste Codes
14. Special Handling Instructions and Additional Information <b>901.9940347430002 TAILOR W/109 952.00M002 OIL S1423-2018-01-37-19604 (Semi) 5K GALLON</b>				
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.				
Generator/Offeror's Printed/Typed Name <b>Bob Shaeffner 06/27/19</b>		Signature <b>[Signature]</b>		Month Day Year <b>02 27 19</b>
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.      Port of entry/exit: _____ Date leaving U.S.: _____				
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <b>H. M. 10000</b> Signature <b>[Signature]</b> Month Day Year <b>02 27 19</b> Transporter 2 Printed/Typed Name <b></b> Signature <b></b> Month Day Year <b></b>				
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:				
18b. Alternate Facility (or Generator) Facility's Phone: 18c. Signature of Alternate Facility (or Generator)      Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. <b>11141</b> 2. <b>11141</b> 3. <b></b> 4. <b></b>				
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name <b>HANNA WHITFIELD</b> Signature <b>[Signature]</b> Month Day Year <b>02 27 19</b>				





February 28, 2019

US STEEL-GREAT LAKES WORKS  
1 QUALITY DRIVE  
ECORSE MI, 48229

Sir/Madam,

Enclosed you will find signed copies of your shipping documents, which indicates acceptance of your waste at our Emerald Transformer facility in Twinsburg, OH.

Shipping Document Number: 001775078JJK

Date Received: 2/28/2019

In accordance with 40 CFR 264.12(b), Emerald Transformer, Twinsburg Facility has the appropriate state and federal permits to accept, store, and/or treat the waste you shipped to our facility. This letter should be kept on file with your copy of the signed manifest.

We appreciate your business. If you have any questions, please contact me at (330)- 425-3825.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Delpupo".

Jim Delpupo  
Plant Manager  
Emerald Transformer  
Jdelpupo@Emeraldtransformer.com



Please print or type.

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NIEA 3824824	2. Page 1 of /	3. Emergency Response Phone 844-576-1331	4. Manifest Tracking Number <b>012675720 FILE</b>
5. Generator's Name and Mailing Address <i>U.S. STEEL GREAT LAKES WORKS</i> 1-800-STEEL STARTER 1 QUALITY DR Ecorse, MI 48226		Generator's Site Address (if different than mailing address) <i>U.S. Steel Great Lakes Works</i> 1 Quality Dr Ecorse, MI 48226			
Generator's Phone: <i>511-576-1331</i>					
6. Transporter 1 Company Name <i>Emerald Transformer PPM, LLC.</i>		U.S. EPA ID Number <b>FLR000158203</b>			
7. Transporter 2 Company Name		U.S. EPA ID Number			
8. Designated Facility Name and Site Address <i>Emerald Transformer PPM, LLC</i> 1673 East Highland Road Twinbury, OH 44178 (330) 435-5825		U.S. EPA ID Number <b>OH D025075300</b>			
Facility's Phone:					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes
1.	UN2315, Polychlorinated Biphenyls, Liquid, 9, PGIII	1	CBB	6136	E
2.	UN2315, Polychlorinated Biphenyls, Liquid, 9, PGIII	1	TP	5115	K
3.					
4.					
14. Special Handling Instructions and Additional Information 1) POMCHTRY (TRANSFORMED) 2) PPMDHD (OIC) Trailer# 3204					
ERG #71 Unit 504 ERG #71 JORM 00033767					
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste-minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generators/Offerees Printed/Typed Name <i>Rich Sauer</i>		Signature _____ Month Day Year <i>Rich Sauer</i> 03 21 19			
16. International Shipments <input checked="" type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: _____ Date leaving U.S.: _____			
Transporter signature (for exports only):					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <i>Harold W. Potts, JR.</i>		Signature _____ Month Day Year <i>Harold W. Potts, JR.</i> 03 21 19			
Transporter 2 Printed/Typed Name		Signature _____ Month Day Year			
18. Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection		Manifest Reference Number: <i>2.5164K</i>			
18b. Alternate Facility (or Generator)		U.S. EPA ID Number			
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator)		Month Day Year			
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1.	2.	3.	4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a					
Printed/Typed Name <i>Amber Whithell</i>		Signature _____ Month Day Year <i>Amber Whithell</i> 03 21 19			





March 22, 2019

US Steel Great Lakes  
1 Quality DR.  
Elrose, MI 48229

Attn: Manifest Dept.

Enclosed you will find signed copies of your shipping documents, which indicates acceptance of your waste at our Emerald Transformer facility in Twinsburg, OH.

Shipping Document Number: 012675720FLE

Date Received: 3/22/2019

In accordance with 40 CFR 264.12(b), Emerald Transformer, Twinsburg Facility has the appropriate state and federal permits to accept, store, and/or treat the waste you shipped to our facility. This letter should be kept on file with your copy of the signed manifest.

We appreciate your business. If you have any questions, please contact me at (330)- 425-3825.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Delpuppo".

Jim Delpuppo  
Plant Manager  
Emerald Transformer  
Jdelpuppo@Emeraldtransformer.com



## Emerald Transformer PPM, LLC- PCB CONTINUATION SHEET

\*\*Each unit Must Be Marked on Sheet With All corresponding information Filled in\*\*  
 \*\*THIS PAGE MUST MATCH THE MANIFEST IT ACCOMPANIES\*\*

GENERATOR: 15,500 - Gen 2000 units MANIFEST# 012675720 PCE

Pg / of /

Manifest Line Number	Unit Type	Unique Generator ID Number	Serial Number	Material Description	Out of Service Date	KVA	Transformer Type	LBS	RGS	Full or Empty	PCB Level
9b-1	GN		3779699	TRANSFORMER	3-21-19	SUB	13500	6136	empty	7500	
9b-2	TP				01/	3-21-19		3810	1732	300 cu in	7500
	TP				01/			3810	1732	300 cu in	
	TP				01/			3632	1651	286 cu in	

UNIT TYPES:  
 DM = DRUM METAL  
 CW = CONTAINER WOOD

MATERIAL DESCRIPTION:  
 DF = DRUM FIBER CM=CONTAINER METAL  
 O=OIL  
 TCH, OCB, etc

TRANSFORMER TYPE:  
 POLE

B=BUSHING  
 C=CAPACITOR D=DEBRIS  
 O=OIL

T=TRANSFORMER  
 PAD  
 SUBSTATION



FORMER CHECK IN SHEET  
BUCK ENTRY # 00006000

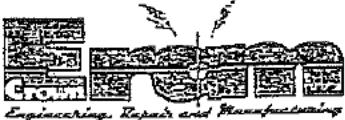
TRAILER # 304 MANIFEST # D105700515 LOCATION ROW 13467



PPMCHTRH

Serial #	5061710	KVA	2000	Primary Voltage	6600	Secondary voltage	440
Mfr	BLT	Taps		Pole	Pad	Sub	Other
Gal	Full or Empty	Not	3	Other	Other	3	LBS / 3250
Comp				PCB Results	INTER	CURRENT	
Serial #	4619-3	KVA		Primary Voltage		Secondary voltage	
Mfr		Taps		Pole	Pad	Sub	Other
Gal	Full or Empty	Full		Other	16501	1	LBS 4570
Comp				PCB Results	INTER	GREEN	DH 3
Serial #	4619-4	KVA		Primary Voltage		Secondary voltage	
Mfr		Taps		Pole	Pad	Sub	Other
Gal	Full or Empty	Full		Other	16501	1	LBS 3005
Comp				PCB Results	INTER	GREEN	DH 3
Serial #	4619-5	KVA		Primary Voltage		Secondary voltage	
Mfr		Taps		Pole	Pad	Sub	Other
Gal	Full or Empty	Full		Other	16501	1	LBS 3785
Comp				PCB Results	INTER	GREEN	DH 3
Serial #		KVA		Primary Voltage		Secondary voltage	
Mfr		Taps		Pole	Pad	Sub	Other
Gal	Full or Empty			Other			LBS
Comp				PCB Results			
Serial #		KVA		Primary Voltage		Secondary voltage	
Mfr		Taps		Pole	Pad	Sub	Other
Gal	Full or Empty			Other			LBS
Comp				PCB Results			





PO Box 967  
Crown Point, IN 46308-0967

Phone: (219) 663-2400

Fax # 219-663-6509

# Invoice

Date	Invoice #
2/8/2019	23798

Bill To
United States Steel Corporation ATTN: Accounts Payable PO Box 267 Pittsburgh, PA 15230

Ship To
31C-141-J-ENVIRONMENTAL - FRONT AND 7TH USS GREAT LAKES WORKS #1 QUALITY DRIVE Ecorse, MI 48229

Quote No.	P.O. No.	Ship Date	Rep	Ship Via	Terms	Due Date	Job #
18166	20813494	2/4/2019	MAB	CrownE...	Net 30	3/10/2019	80596
Quantity	Description			Rate		Amount	
102,500	Services of Crown ERAM LLC regarding transformer abatement #10 Motor Room, partial line 1 on PO - Progress billing #1 of 4  Edwin Sauve 313-749-2747			1.00		NONRESPONSIVE	

RECEIVED FEB 18 2019

\*\*\*NEW REMIT TO ADDRESS: Crown ERAM LLC,  
7880 Wicker Ave. Box #7, St. John, IN 46373  
Email: billing@crownaram.com; Fax: (219) 663-6509

Thank you for your business!!!!	Total	NONRESPONSIVE
---------------------------------	-------	---------------





PO Box 967  
Crown Point, IN 46308-0967

Phone: (219) 663-2400

Fax # 219-663-6509

# Invoice

Date	Invoice #
3/22/2019	23969

Bill To
United States Steel Corporation ATTN: Accounts Payable PO Box 267 Pittsburgh, PA 15230

Ship To
31C-141-J-ENVIRONMENTAL - FRONT AND 7TH USS GREAT LAKES WORKS #1 QUALITY DRIVE Ecorse, MI 48229

Quote No.	P.O. No.	Ship Date	Rep	Ship Via	Terms	Due Date	Job #
18166	20813494 Rev I	3/22/2019	MAB	CrownE...	Net 30	4/21/2019	80596
Quantity	Description					Rate	Amount
41,000	Services of Crown ERAM LLC regarding transformer abatement #10 Motor Room. partial line 1 on PO - Progress billing #2 of 4  Edwin Sauve 313-749-2747					1.00	NONRESPONSIVE

RECEIVED

MAR 29 2019

Thank you for your business!!!!

Total

NONRESPONSIVE



Global Green Service Group, LLC

27113 Powers  
Dearborn Heights, MI 48125

# Invoice

Date	Invoice #
3/18/2019	5166

Bill To
United States Steel - Great Lakes Works 1 Quality Dr. Ecorse, MI 48229

P.O. No.	Terms	Project
20836557	Net 90 days	19015 - US Steel T&M

Quantity	Description	Rate	Amount
	Asbestos abatement for transformer power cable, # 10 motor room - PCB transformer replacement	NONRESPONSIVE	NONRESPONSIVE

Phone #	Fax #	Total
313-291-2528	313-291-2399	NONRESPONSIVE



Global Green Service Group, LLC

27113 Powers  
Dearborn Heights, MI 48125

# Invoice

Date	Invoice #
4/2/2019	5211

Bill To
United States Steel - Great Lakes Works 1 Quality Dr. Ecorse, MI 48229

P.O. No.	Terms	Project
20845011	Net 90 days	19148 - Motor room # 10 W...

Quantity	Description	Rate	Amount
	Asbestos abatement for transformer power cable, # 10 motor room - PCB transformer replacement. Work completed on 3-25-19 & 3-26-19	NONRESPONSIVE	NONRESPONSIVE

Phone #	Fax #	Total
313-291-2528	313-291-2399	NONRESPONSIVE



# Environmental Testing & Consulting, Inc.

38900 W. Huron River Drive  
Romulus, MI 48174

**Bill To:**

United States Steel  
Corporation Accounts Payable Department  
PO Box 267  
Pittsburgh, PA 15230

# Invoice

Invoice #: 73791  
Invoice Date: 3/5/2019  
Due Date: 6/3/2019  
Project #: 219303  
P.O. Number:

Project Description: 10 Motor Room  
Transformer Install

Description	Hours/Qty	Rate	Amount
Same day analysis of asbestos bulk samples submitted on 03/01/2019.	1	NONRESPONSIVE	NONRESPONSIVE

APPROVED 3-27-2019

Please make checks payable to ETC

Total	NONRESPONSIVE
Payments/Credits	\$0.00
Balance Due	NONRESPONSIVE

Environmental Testing & Consulting, Inc. - Environmental Testing Laboratories

Phone: 734-955-6600 Fax: 734-955-6604

Tax ID: 38-2857170

Please report any concerns to resolve@2etc.com





PO Box 967  
Crown Point, IN 46308-0967

Phone: (219) 663-2400

Fax # 219-663-6509

# Invoice

Date	Invoice #
3/29/2019	24029

<b>BILL TO</b>
United States Steel Corporation ATTN: Accounts Payable PO Box 267 Pittsburgh, PA 15230

<b>SHIP TO</b>
31C-141-J-ENVIRONMENTAL - FRONT AND 7TH USS GREAT LAKES WORKS #1 QUALITY DRIVE Ecorse, MI 48229

Quote No.	P.O. No.	Ship Date	Rep	Ship Via	Terms	Due Date	Job #
18562	20836377 Rev 2	3/29/2019	BRB	CrownE...	Net 30	4/28/2019	80653
Quantity	Description					Rate	Amount <b>NONRESPONSIVE</b>
50.805	Services of Crown ERAM LLC to replace #10 motor room 6900 vac cables. line 1 on PO Edwin Suave, 313-749-2747					1.00	

RECEIVED APR 4 2019

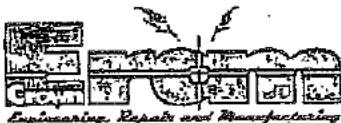
\*\*\*NEW REMIT TO ADDRESS: Crown ERAM LLC,  
7880 Wicker Ave. Box #7, St. John, IN 46373  
Email: billing@crownaram.com; Fax: (219) 663-6509

Thank you for your business!!!!

**Total**

**NONRESPONSIVE**





PO Box 967  
Crown Point, IN 46308-0967

Phone: (219) 663-2400

Fax # 219-663-6509

# Invoice

Date	Invoice #
3/29/2019	24019

Bill To
United States Steel Corporation ATTN: Accounts Payable PO Box 267 Pittsburgh, PA 15230

Ship To
31C-141-J-ENVIRONMENTAL - FRONT AND 7TH USS GREAT LAKES WORKS #1 QUALITY DRIVE Ecorse, MI 48229

Quote No.	P.O. No.	Ship Date	Rep	Ship Via	Terms	Due Date	Job #
18166	20813494 Rev 1	3/29/2019	MAB	CrownE...	Net 30	4/28/2019	80596
Quantity	Description					Rate	Amount
41,000	Services of Crown ERAM LLC regarding transformer abatement #10 Motor Room, part of line 1 on PO - Progress billing #3 of 4  Edwin Sauve 313-749-2747					1.00	NONRESPONSIVE

RECEIVED

APR 04 2019

\*\*\*NEW REMIT TO ADDRESS: Crown ERAM LLC,  
7880 Wicker Ave. Box #7, St. John, IN 46373  
Email: [billing@crownaram.com](mailto:billing@crownaram.com); Fax: (219) 663-6509

Thank you for your business!!!!	NONRESPONSIVE
	Total





PO Box 967  
Crown Point, IN 46308-0967

Phone: (219) 663-2400

Fax # 219-663-6509

# Invoice

Date	Invoice #
3/29/2019	24020

Bill To
United States Steel Corporation ATTN: Accounts Payable PO Box 267 Pittsburgh, PA 15230

Ship To
31C-141-J-ENVIRONMENTAL - FRONT AND 7TH USS GREAT LAKES WORKS #1 QUALITY DRIVE Ecorse, MI 48229

Quote No.	P.O. No.	Ship Date	Rep	Ship Via	Terms	Due Date	Job #
18166	20813494 Rev I	3/29/2019	MAB	CrownE...	Net 30	4/28/2019	80596
Quantity	Description					Rate	Amount
20,500	Services of Crown ERAM LLC regarding transformer abatement #10 Motor Room, part of line 1 on PO - Progress billing #4 of 4 FINAL  Edwin Sauve 313-749-2747					1.00	NONRESPONSIVE

RECEIVED

APR 04 2019

\*\*\*NEW REMIT TO ADDRESS: Crown ERAM LLC,  
7880 Wicker Ave. Box #7, St. John, IN 46373  
Email: [billing@crownaram.com](mailto:billing@crownaram.com); Fax: (219) 663-6509

Thank you for your business!!!!	Total	NONRESPONSIVE
---------------------------------	-------	---------------



2019 – Anneal PCB Transformer – Emerald  
Transformer

Form Approved. OMB No. 2050-0039

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number <b>1541804-624</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>844-576-1331</b>	4. Manifest Tracking Number <b>012675719 FLE</b>		
5. Generator's Name and Mailing Address  <b>U.S. STEEL GREAT LAKES QUALITY DR. ECLORE MI 48229</b>		Generator's Site Address (if different than mailing address)  <b>U.S. Steel Great Lakes Works 1 Quality Dr. Eclore, MI 48229</b>					
Generator's Phone:  <b>1-800-544-2222</b>		U.S. EPA ID Number  <b>FLE0001158203</b>					
6. Transporter 1 Company Name  <b>Emerald Transformer PPM, LLC</b>		U.S. EPA ID Number  <b></b>					
7. Transporter 2 Company Name		U.S. EPA ID Number  <b></b>					
8. Designated Facility Name and Site Address  <b>Emerald Transformer PPM, LLC 1672 East Highland Road Tremont, OH 44487 (419) 422-3825</b>		U.S. EPA ID Number  <b>L0H09R6974306</b>					
Facility's Phone:  <b></b>							
GENERATOR	9a. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))  <b>RQ, UN3315, Polychlorinated Biphenyls, Liquid, 9, PG III</b>		10. Containers No. <b>1</b>	Type <b>GM</b>	11. Total Quantity <b>3386</b>	12. Unit WL/Vol. <b>K</b>	13. Waste Codes  <b></b>
	<b>X</b>						
	<b>2.</b>						
	<b>X RQ, UN3315, Polychlorinated Biphenyls, Liquid, 9, PG III</b>		<b>1</b>	<b>TP</b>	<b>1891</b>	<b>K</b>	
	<b>3. RQ, UN3432, POLYCHLORINATED BIPHENOLS, SOLIDS, 9, PG III</b>		<b>1</b>	<b>DM</b>	<b>034</b>	<b>K</b>	
	<b>4.</b>						
14. Special Handling Instructions and Additional Information  <b>1) PRIMCHTRN (TRANSFORMER) 2) PRIMCHSI (SOLID DEBRIS) 3) PRIMDH3 (OIL) Trailer # 3204</b>							
				ERG #71	Unit 537		
				ERG #71			
				TOE# DA02277			
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator/Offeror's Printed/Typed Name  <b>Rick Sime on Behalf of HS-SPEI</b>		Signature  <b>Handwritten Signature</b>		Month <b>03</b>	Day <b>21</b>	Year <b>19</b>	
16. International Shipments <input checked="" type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit  <b>O</b>		Date leaving U.S.:  <b></b>			
INT'L							
17. Transporter Acknowledgment of Receipt of Materials  <b>Harold W Potts, Jr</b>							
Transporter 1 Printed/Typed Name  <b>Harold W Potts, Jr</b>		Signature  <b>Handwritten Signature</b>		Month <b>03</b>	Day <b>21</b>	Year <b>19</b>	
Transporter 2 Printed/Typed Name  <b></b>		Signature  <b></b>		Month <b></b>	Day <b></b>	Year <b></b>	
TRANSPORTER							
18. Discrepancy  <b>1. 344K 2. 1895K 3. 34K</b>							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection		Manifest Reference Number:  <b></b>					
18b. Alternate Facility (or Generator)		U.S. EPA ID Number  <b></b>					
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator)		Month Day Year  <b></b>					
DESIGNATED FACILITY							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)  <b>1. 11141 2. 11141 3. 11141 4.</b>							
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a  <b>Printed/Typed Name Timber White</b>							
Signature  <b>Handwritten Signature</b>		Signature  <b>Handwritten Signature</b>					
Month <b>03</b>		Day <b>21</b>	Year <b>19</b>				



## Emerald Transformer PPM, LLC- PCB CONTINUATION SHEET

\*\*Each unit Must Be Marked on Sheet With All corresponding information Filled in\*\*

\*\*THIS PAGE MUST MATCH THE MANIFEST IT ACCOMPANIES\*\*

Pg / of / GENERATOR: U.S. STEER - GREAT LAKES WORKS MANIFEST# 012675719 FILE

Manifest Line Number	Unit Type	Unique Generator ID Number	Serial Number	Material Description	Out of Service Date	KVA	Transformer Type	LBS	KGS	Full or Empty	PCB Level
1b-1	CM	YDR-80952		TRANSFORMER	3-21-19	SUB	7450	3306	EMPTY	>500	
1b-2	TP	THU13		OIL	3-21-19		4160	1891	320 GRS	2500	
1b-3	DM	DM-1		DEBRIS	3-21-19		75	34	FULL	2000	

UNIT TYPES:

DM = DRUM METAL

POLE

B=BUSHING

T=TRANSFORMER

C=CAPACITOR D=DEBRIS

PAD

MATERIAL DESCRIPTION:

DF = DRUM FIBER CM=CONTAINER METAL

O=OIL

SUBSTATION

A-SWITCH, OCB, etc

CW= CONTAINER WOOD

NOTE: 11610 LBS TOTME

4160 LBS OIL (320 GRS)

INNIT #553





March 22, 2019

US Steel Great Lakes  
1 Quality DR.  
Elrose, MI 48229

Attn: Manifest Dept.

Enclosed you will find signed copies of your shipping documents, which indicates acceptance of your waste at our Emerald Transformer facility in Twinsburg, OH.

Shipping Document Number: 012675719FLE

Date Received: 3/22/2019

In accordance with 40 CFR 264.12(b), Emerald Transformer, Twinsburg Facility has the appropriate state and federal permits to accept, store, and/or treat the waste you shipped to our facility. This letter should be kept on file with your copy of the signed manifest.

We appreciate your business. If you have any questions, please contact me at (330)- 425-3825.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Delpuppo".

Jim Delpuppo  
Plant Manager  
Emerald Transformer  
Jdelpuppo@Emeraldtransformer.com





PO Box 967  
Crown Point, IN 46308-0967

Phone: (219) 663-2400

Fax # 219-663-6509

# Invoice

Date	Invoice #
3/28/2019	24131

Bill To
United States Steel Corporation ATTN: Accounts Payable PO Box 267 Pittsburgh, PA 15230

Ship To
31C-141-J-ENVIRONMENTAL - FRONT AND 7TH USS GREAT LAKES WORKS #1 QUALITY DRIVE Ecorse, MI 48229

Quote No.	P.O. No.	Ship Date	Rep	Ship Via	Terms	Due Date	Job #
18623	20852429	4/3/2019	BRB	CrownE...	Net 30	4/27/2019	80655
Quantity	Description			Rate		Amount	NONRESPONSIVE
126,750	Services of Crown ERAM LLC regarding moving transformers, part of line item #1 on PO  Edwin Sauve 313-749-2747			1.00			

\*\*\*NEW REMIT TO ADDRESS: Crown ERAM LLC,  
7880 Wicker Ave. Box #7, St. John, IN 46373  
Email: billing@crowneram.com; Fax: (219) 663-6509

Thank you for your business!!!!

Total

NONRESPONSIVE



## **Appendix C – No. 2 BOP Shop Roof Observations**



## Visual Determination of Opacity

FACILITY #2 BOP SHOP ROOF

OBSERVER P. Kuntzler - Verdin Water

Wind Direction and Speed NNW 5-10 Sky Condition SUNNY Temp: 39°

Comments:

DATE 1-6-19

Start Time 12:45 P.M. End Time 2:22 P.M.

LOCATION N. P. USS GLW

OBSERVER'S LOCATION SE 140 YDS FROM BOP

Source

Draw North Arrow

Observer

140°

sun location line

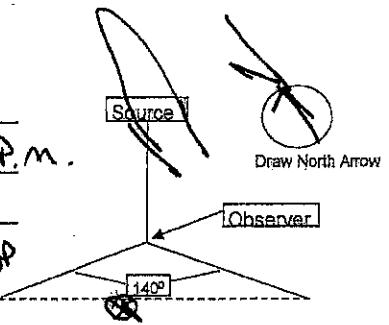
## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
1:00	0	0	5	5	5			30					
	1	0	0	0	0			31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0			34					
	5	0	0	0	0			35					
	6	5	5	5	5			36					
	7	5	0	0	0			37					
	8	0	0	0	0			38					
	9	0	0	0	0			39					
	10	0	0	0	0			40					
	11	0	0	0	0			41					
	12	0	0	0	0			42					
	13	0	0	0	0			43					
	14	0	0	0	0			44					
1:15	15	0	0	0	0	TAP 25-0817	12:45	45	0	0	0	0	START V.E.O.
	16	0	0	0	0		12:46	46	0	0	0	0	TAP 26-2905
	17	0	0	0	0			47	0	0	0	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0		12:49	49	0	0	0	0	START BLOW
	20	0	0	0	0			50	0	0	0	0	25-0817
	21	0	0	0	0			51	0	0	0	0	
	22	0	0	0	0			52	0	0	0	0	
	23	0	0	0	0			53	0	0	0	0	
	24	0	0	0	0			54	0	0	0	0	
	25	0	0	0	0			55	0	5	0	5	CENTER 3 EAST
	26	0	0	0	0			56	0	5	0	0	ROOF GREY
	27	0	0	0	0			57	0	5	5	10	IN COLOR
	28	0	0	0	0			58	5	5	5	0	
	29	0	0	0	0			59	0	0	0	0	

## Visual Determination of Opacity

FACILITY #2 BOP SHOP ROOF  
 OBSERVER P. Kristjale - Vickie Weller  
 Wind Direction and Speed NNW 5-10 Sky Condition SUNNY Temp: 40°  
 Comments:

DATE 1-6-19  
 Start Time 12:45 P.M. End Time 2:22 P.M.  
 LOCATION M.P. USS GLU  
 OBSERVER'S LOCATION SE 140 YDS FROM BOP



## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	0	0	0	5		1:30	30	0	0	0	0	
	1	5	10	10	10			31	0	0	0	0	
	2	15	15	10	10			32	0	0	0	0	
	3	10	5	5	5			33	0	0	0	0	
	4	5	5	0	0			34	0	0	0	0	
	5	0	0	0	0			35	0	0	0	0	
	6	0	0	0	0			36	0	0	0	0	
	7	0	0	0	0			37	0	0	0	0	
	8	0	0	0	0			38	0	0	0	0	
	9	0	0	0	0			39	0	0	0	0	
	10	0	0	0	0			40	0	0	0	0	
	11	0	0	0	0			41	0	0	0	0	
	12	0	0	0	0			42	0	0	0	0	
	13	0	0	0	0			43	0	0	0	0	
	14	0	0	0	0		1:44	44	0	0	0	0	START BLOW
	15	0	0	0	0			45	0	0	0	0	25-0818
	16	0	0	0	0			46	0	0	0	0	
	17	0	0	0	0			47	0	0	0	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
2:21	21	0	0	0	0	TAP 25-0818		51	0	0	0	0	
2:22	22	0	0	0	0	END V.E.O.		52	0	5	5	10	CENTER & EAST
	23							53	5	5	5	5	GREY in COLOR
	24							54	5	0	0	0	
	25							55	0	0	0	0	
	26							56	0	0	0	0	
	27							57	0	0	0	0	
	28							58	0	0	0	0	
	29							59	0	0	0	0	

## Visual Determination of Opacity

DATE 1-16-19

FACILITY #2 BOP SHOP ROOF

Start Time 1:46 A.M End Time 2:33 P.M

OBSERVER P. King - Vodla Water

LOCATION M.P. USS GLW

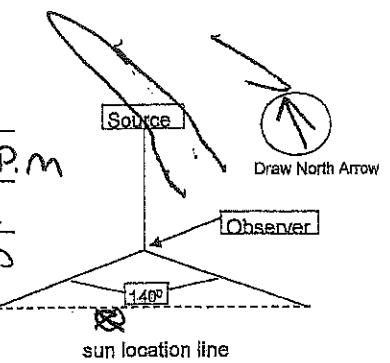
Wind Direction and Speed NNE 10-20 CLOUDY Sky Condition Temp: 32°

OBSERVER'S LOCATION SE - 140 YDS FROM BOP

Comments:

## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	○	○	○	○		2:30	30	○	○	○	○	
	1	○	6	○	○			31	○	○	○	○	
	2	○	○	○	○		2:32	32	○	○	○	○	TAP 26 - 3/02
	3	○	○	○	○		2:33	33	○	○	○	○	END V.E.O.
	4	○	○	○	○			34					
	5	○	○	○	10	WEST & CENTER		35					
	6	10	10	10	5	SECTION, GREY		36					
	7	5	5	○	○	IN COLOR		37					
2:08	8	5	10	15	10	START BLOW		38					
	9	10	5	○	○	26 - 3/02		39					
	10	○	○	○	○			40					
	11	○	○	○	6			41					
	12	○	○	○	○			42					
	13	○	○	○	○			43					
	14	○	○	○	○			44					
	15	○	○	○	○			45					
	16	○	○	○	○		1:46	46	○	○	○	○	START V.E.O.
	17	○	○	○	○		1:47	47	○	○	○	○	TAP 26 - 3/01
	18	○	○	○	○			48	○	○	○	○	
	19	○	○	○	○			49	○	○	○	○	
	20	○	○	○	○			50	○	○	○	○	
	21	○	○	○	○			51	○	○	○	○	
	22	○	○	○	○			52	○	○	○	○	
	23	○	○	○	○			53	○	○	○	○	
	24	○	○	○	○			54	○	○	○	○	
	25	○	○	○	○			55	○	○	○	○	
	26	○	○	○	○			56	○	○	○	○	
	27	○	○	○	○			57	○	○	○	○	
	28	○	○	○	○			58	○	○	○	○	
	29	○	○	○	○			59	○	○	○	○	





## Visual Determination of Opacity

DATE 1-30-19

FACILITY # 2 BOP Hwy Roof  
 OBSERVER Paul Bush - Veolia Water  
 Wind Direction and Speed WSW 20-35 mph. Sunny  
 Comments:

Start Time 12:40 pm End Time 2:15 pm  
 LOCATION MP USSGLW  
 OBSERVER'S LOCATION SE from Box ~200 yards

1 Source



Drew North Arrow

## BACKGROUND

sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
1:00	0	0	0	0	0			30					
	1	0	0	0	0			31					
	2	0	0	0	5	W Roof		32					
	3	10	0	0	0			33					
	4	0	0	0	0			34					
	5	0	0	0	0			35					
	6	0	0	0	0			36					
	7	0	0	0	0			37					
	8	0	0	0	0			38					
	9	0	0	0	0			39					
	10	0	0	0	0	26-3383	12:40	40	0	0	0	0	Start VED
	11	0	0	0	0	Start Blow 1:12		41	0	0	0	0	25-1201 tap
1:12	12	0	15	30	25	W.Etr Roof		42	0	0	0	0	12:45 pm
	13	15	15	10	5	Peddish		43	0	0	0	0	
	14	5	10	10	25	W Roof		44	0	0	0	0	
	15	25	25	25	10		12:45	45	0	0	0	0	tap
	16	5	0	0	0			46	0	0	0	0	
	17	0	0	0	0			47	0	0	0	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
	21	0	0	0	0			51	0	0	0	0	
	22	0	0	0	0			52	0	0	0	0	
	23	0	0	0	0			53	0	0	0	0	
	24	0	0	0	0			54	0	0	0	0	
	25	0	0	0	0			55	0	0	0	0	
	26	0	0	0	0			56	0	0	0	0	
	27	0	0	0	0			57	0	0	0	0	
	28	0	0	0	0			58	0	0	0	0	
	29	0	0	5	5	Near 26 E side		59	0	0	0	0	

pg 1 of 2

## Visual Determination of Opacity

FACILITY #2 BOP Shops Roof  
 OBSERVER Paul Bush - Vicksburg Water  
 Wind Direction and Speed NW 20-30 mph Sky Condition Sunny Temp: -6°F  
 Comments:

DATE 1-30-19  
 Start Time 12:40pm End Time 2:15pm  
 LOCATION MP Vicksburg  
 OBSERVER'S LOCATION SE from BOP ~ 200 yards

Source



Draw North Arrow

Observer

140°  
 X sun location line

## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	0	0	0	0		1:30	30	5	10	10	20	W.Roof Reddish
	1	0	0	0	0			31	25	30	30	40	25% Ctr Roof
	2	0	0	0	0			32	30	35	30	30	
	3	0	0	0	0			33	15	15	15	10	26.25%
	4	0	0	0	0			34	10	10	5	5	26.25%
	5	0	0	10	10			35	10	15	0	0	
	6	0	0	0	0			36	0	10	15	0	
	7	0	0	0	0			37	0	0	0	0	
	8	0	0	0	0			38	0	0	0	0	
	9	0	0	0	0			39	0	0	0	0	
	10	0	0	0	0			40	0	0	0	0	
	11	0	0	0	0			41	0	0	0	0	
	12	0	0	0	0			42	0	0	0	0	
	13	0	0	0	0		1:43	43	0	10	10	15	E.Roof Reddish/Brownish
	14	0	0	0	0	25-1202		44	15	25	40	50	
2:15	15	0	0	0	0	Tap		45	60	60	70	85	
	16							46	25	35	80	85	
	17							47	80	75	75	70	
	18							48	70	60	60	50	Brownish
	19							49	40	30	25	15	Sand Seal?
	20						1:50	50	25	20	5	5	Start Slow
	21							51	0	0	0	0	25-1202
	22							52	0	0	0	0	
	23							53	0	0	0	0	
	24							54	0	0	0	0	
	25							55	0	0	0	0	
	26							56	0	0	0	0	
	27							57	0	0	0	0	
	28							58	0	0	0	0	
	29							59	0	0	0	0	

pg 2 of 2

## Visual Determination of Opacity

FACILITY	DATE 2-15-19		
#2 BOP Shgs Roof	Start Time 9:30 Am	End Time 10:20 Am	Source Draw North Arrow
OBSERVER Paul Bush - Vicksburg Water	LOCATION MP 455GLW		
Wind Direction and Speed W 15-30 mph	Sky Condition Overcast	Temp: 34°F	OBSERVER'S LOCATION ENE from BOP ~150 yards
Comments:			

BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
10:00	0	0	0	0	0		9:30	30	0	0	0	0	Start 1/20
	1	0	0	0	0			31	0	0	0	0	Top 26-3552
	2	0	0	0	0			32	0	0	0	0	9:30 Am
	3	0	0	0	0			33	0	0	0	0	
	4	0	0	0	0			34	0	0	0	0	
	5	0	0	0	5	w near 26 & W.wood		35	0	0	0	0	
	6	5	5	5	10	STK		36	0	0	0	0	
	7	5	5	5	5			37	0	0	0	0	
	8	5	0	0	0			38	0	0	0	0	
	9	0	0	0	0			39	0	0	0	0	
	10	0	0	0	0			40	0	0	0	0	
	11	0	0	0	0			41	0	0	0	0	
	12	0	0	0	0			42	0	0	0	0	
	13	0	0	0	0			43	0	5	5	0	
	14	0	0	0	0			44	0	0	0	0	
	15	0	0	0	0			45	0	0	0	0	
	16	0	0	0	0			46	0	0	0	0	
	17	0	0	0	0			47	0	0	0	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
10:20	20	0	0	0	0	Top 10:20		50	0	0	0	0	
	21					26-3553		51	0	0	0	0	
	22							52	0	0	0	0	Hmc Blug
	23							53	0	0	0	5	W. Roof
	24							54	10	25	40	40	greyish
	25							55	25	20	10	15	
	26						9:56	56	5	5	0	0	Start Blow
	27							57	0	0	0	0	26-3553
	28							58	0	0	0	0	
	29							59	0	0	0	0	



## Visual Determination of Opacity

FACILITY #2 BOP Roof Monitor

OBSERVER Paul Bush - Verlic Water

Wind Direction and Speed WSW 0-5 mph

Sky Condition Sunny

Temp: 18°F

Comments: Egg Stock test

BACKGROUND

DATE 2-19-19

Start Time 2:15pm

End Time 5:07pm

Source

LOCATION MP USS GLW

OBSERVER'S LOCATION SE from BOP ~160 yards

Draw North Arrow

Observer

140°  
80°

sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
0							2:30	30	0	0	0	0	
1								31	0	0	0	0	
2								32	0	0	0	0	
3								33	0	0	0	0	
4								34	0	0	0	0	
5								35	0	0	0	0	
6								36	0	0	0	0	
7								37	0	0	0	0	
8								38	0	0	0	0	
9								39	0	0	0	0	
10								40	0	0	0	0	
11								41	0	0	0	0	Steam stopped
12								42	0				
13	(1)							43					
14								44					
2:15		0	0	0	0	Start VED		45					
		0	0	0	0			46					
		0	0	0	0	25-1448		47					
		0	0	0	0	Start Blow		48					
		0	0	0	0	2:16pm		49					
		0	0	0	0			50					
		0	0	0	0			51					
		0	0	0	0			52					
		0	0	10	15	E Roof Reddish		53					
		20	20	25	15	Other roof		54					
		15	10	10	10			55					
		5	5	0	0			56					
		0	0	0	0			57					
		0	0	0	0			58					
		0	0	0	0			59					

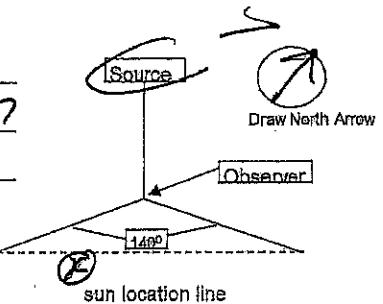
pg 1 of 4

## Visual Determination of Opacity

FACILITY #2 BOP Roof Monitor  
 OBSERVER Bull Bush - Vercilla Water  
 Wind Direction and Speed WSW 0-10 mph sunny  
 Comments: Esp. Stack test

DATE 2-19-19  
 Start Time 2:15 pm End Time 5:07

LOCATION TYP 455GLW  
 OBSERVER'S LOCATION S E from BOP ~1604 yards



Hour	Min	Seconds				Comments	Hour	Min	Seconds				Comments
		0	15	30	45				0	15	30	45	
3:00	0							30					
	1	(2)						31					
	2					Start Blow		32					
	3	0	0	0	0	3:02 pm		33					
	4	0	0	0	0	Steam Start		34					
	5	0	0	0	0	25-1449		35					
	6	0	0	0	0			36					
	7	0	0	0	0			37					
	8	0	0	0	0			38					
	9	0	0	0	0			39	(3)				Start Blow 3:39
	10	0	0	0	0			40					
	11	0	0	0	0		3:41	41	5	10	10		Start Steam
	12	0	0	0	0			42	5	5	5	5	26-3606
	13	0	0	0	0			43	5	5	5	5	iso Chiller area &
	14	0	0	0	0			44	5	5	5	5	ctr Hwy near 26
	15	0	0	0	0			45	0	0	0	0	
	16	0	0	0	0			46	0	0	0	0	
	17	0	0	0	0			47	0	0	0	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
	21	0	0	0	0	Steam Stopped		51	0	0	0	0	
	22	0	0	0	0			52	0	0	0	0	
	23	0	0					53	0	0	0	0	
	24							54	0	0	0	0	
	25					Blow stopped		55	0	0	0	0	
	26					3:26		56	0	0	0	0	
	27							57	0	0	0	0	
	28							58	0	0	0	0	
	29							59	0	0	0	0	

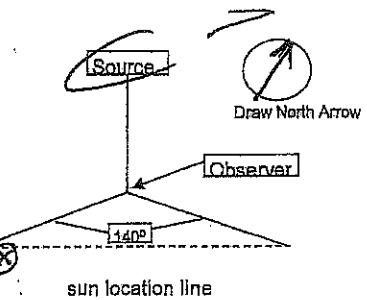
pg 2 of 4

## Visual Determination of Opacity

FACILITY #2 BOP Roof Monitors  
 OBSERVER Paul Bush - Veolia Water  
 Wind Direction and Speed WSW 0-10 mph sunny  
 Comments: Esp Stark-test

BACKGROUND

DATE 2-19-19  
 Start Time 2:15 pm End Time 5:07  
 LOCATION MP USS GLW  
 OBSERVER'S LOCATION SSE from BOP ~ 160 yards



HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
7:00	0	0	0	0	0			30					
	1	0	0	0	0	Steam Stopped		31					
	2	0	0	0	0			32					
	3							33					
	4							34					E wind
	5							35					
	6							36					
	7							37					
	8							38					
	9							39					
	10							40					
	11							41					
	12							42					4:44 Start Blow
	13							43					25-1450
	14							44					
	15							45		0	0	0	Steam Started
	16							46	0	0	0	0	
	17*							47	0	0	0	0	
	18							48	0	0	0	0	
	19							49	0	0	0	0	
	20							50	0	0	0	0	
	21							51	0	0	0	0	
	22							52	0	0	0	5	E roof area 25 reddish
	23							53	5	5	15	10	
	24							54	10	5	5	10	
	25							55	5	5	5	5	
	26							56	5	5	5	10	
	27							57	5	5	5	5	
	28							58	5	5	5	5	
	29							59	5	5	5	5	

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## Visual Determination of Opacity

FACILITY #	2300 Roof Monitor	DATE	2-19-19	
OBSERVER	Paul Bush Vicksburg Water	Start Time	2:15 pm	End Time
Wind Direction and Speed	ESE 0-10 mph	LOCATION	MP 155 GLW	
Sky Condition	Sunny	OBSERVER'S LOCATION	18°F ESE from Bar	~180 yards
Comments:	ESP stack test			
BACKGROUND				

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
5:00	0	5	5	5	10			30					
	1	5	5	5	10			31					
	2	10	10	5	5			32					
	3	5	5	5	5			33					
	4	5	0	0	0			34					
	5	0	0	0	0			35					
	6	0	0	0	0	Steam Stopped		36					
	7	0	0	0	0			37					
	8							38					
	9							39					
	10							40					
	11							41					
	12							42					
	13							43					
	14							44					
	15							45					
	16							46					
	17							47					
	18							48					
	19							49					
	20							50					
	21							51					
	22							52					
	23							53					
	24							54					
	25							55					
	26							56					
	27							57					
	28							58					
	29							59					

pg 4 of 4

## Visual Determination of Opacity

DATE 2-27-19

FACILITY #2 BOP Shop Roof

Start Time

1:28 AM

End Time

2:23 pm

Source



Drew North Arrow

OBSERVER Paul Bush - Karla Water

LOCATION

W-1 SSGLW

Wind Direction and Speed

SE 10-15 mph overcast

Sky Condition

Temp:

27°F

OBSERVER'S LOCATION

SS2 from BOP ~200yds

Comments:

## BACKGROUND

  
No See sun location line

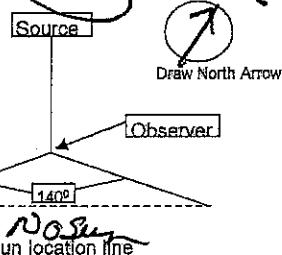
HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
0							1130	30	0	0	0	0	
1								31	0	0	0	0	
2								32	0	0	0	0	
3								33	0	0	0	0	
4								34	0	0	0	0	
5								35	0	0	0	0	
6								36	0	0	0	0	
7								37	0	0	0	0	
8								38	0	0	0	0	
9								39	0	0	0	0	
10								40	0	0	0	0	
11								41	0	0	0	0	
12								42	0	0	0	0	
13								43	0	0	0	0	
14								44	0	0	0	0	
15								45	0	0	0	0	
16								46	0	0	0	0	
17								47	0	0	0	0	
18								48	0	0	0	0	
19								49	0	0	0	0	
20								50	0	0	0	0	
21								51	0	0	0	0	
22								52	0	0	0	0	
23								53	0	0	0	0	
24								54	0	0	0	0	
25								55	0	0	0	0	
26							1:56	56	0	10	20	30	Start Blow
27								57	30	20	10	10	25-1591 1:58pm
28	0	0	0	0				58	0	0	0	0	
29	0	0	0	0			25-1590 1:28pm	59	0	0	0	0	

Pg 1 of 2

## Visual Determination of Opacity

FACILITY # 2BOP Shop Roof  
OBSERVER Paul Bush - Vicksburg Water  
Wind Direction and Speed ESE 10-15 mph overcast  
Comments:

DATE 2-27-19  
Start Time 1:28pm End Time 2:23pm  
LOCATION MP USG LW  
OBSERVER'S LOCATION SSW from BOP ~200 yards  
Temp: 27°F



## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	0	0	0	0			30					
	1	0	0	0	0			31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0			34					
	5	0	0	0	0			35					
	6	0	0	0	0			36					
	7	0	0	0	0			37					
	8	0	0	0	0			38					
	9	0	0	0	0			39					
	10	0	0	0	0			40					
	11	0	0	0	0			41					
	12	0	0	0	0			42					
	13	0	0	0	0			43					
	14	0	0	0	0			44					
	15	0	0	0	0			45					
	16	0	0	0	0			46					
	17	5	5	5	5			47					
	18	0	0	0	0			48					
	19	0	0	0	0			49					
	20	0	0	0	0			50					
	21	0	0	0	0			51					
	22	0	0	0	0			52					
2:23	23	0	0	0	0	Top		53					
	24	10	10			25-1591		54					
	25					End VEO		55					
	26							56					
	27							57					
	28							58					
	29							59					

PG 2 of 2

## Visual Determination of Opacity

DATE 3-13-19

FACILITY #2 BOP SHOP ROOF  
 OBSERVER P. Kuykendall - Vedua Water  
 Wind Direction and Speed S 10-15 Sky Condition CLOUDY Temp: 39°  
 Comments:

Start Time 1:34 P.M. End Time 3:16 P.M.  
 LOCATION m.p. USS GLW  
 OBSERVER'S LOCATION SE 150 YDS FROM BOP

Source 1

Draw North Arrow

Observer

## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	0	0	0	0	25 - 1787		30					
	1	0	0	0	0			31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0		1:34	34	0	0	0	0	START V.E.O.,
	5	0	0	0	0		1:35	35	0	0	0	0	TAP 25 - 8970
	6	0	0	0	0			36	0	0	0	0	
	7	0	0	0	0			37	0	0	0	0	
	8	0	0	0	0			38	0	0	0	0	
	9	10	10	10	10	V.E CENTER		39	0	0	0	0	
	10	10	10	5	5	SECTION GREY		40	0	0	0	0	
	11	5	0	0	0	IN COLOR		41	0	0	0	0	
	12	0	0	0	0			42	0	0	0	0	
	13	0	0	5	5			43	0	0	0	0	
	14	0	0	0	0			44	0	0	0	0	
	15	5	10	10	15	CENTER & EAST		45	0	0	0	0	
	16	10	10	5	5	SECTION GREY		46	0	0	0	0	
	17	0	0	0	0	IN COLOR		47	0	0	0	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
	21	0	0	0	0			51	0	0	0	0	
2:22	22	0	0	0	0	TAP 25 - 1787		52	0	0	0	0	
	23	0	0	0	0			53	0	0	0	0	
	24	0	0	0	0			54	0	0	0	0	
	25	0	0	0	0			55	0	0	0	0	
	26	0	0	0	0			56	0	0	0	0	
	27	0	0	0	0			57	0	0	0	0	
	28	0	0	0	0			58	0	0	0	0	
	29	0	0	0	0		1:59	59	0	0	0	0	START BLOW

## Visual Determination of Opacity

DATE 3-13-19

FACILITY #2 BOP SHOP ROOF

Start Time 1:34 P.M.

End Time 3:16 P.M.

OBSERVER P. Kingfisher - Vassar Water

LOCATION M.P. USS G.L.U.

Wind Direction and Speed S 10° 15' Sky Condition CLOUDY Temp: 42°

OBSERVER'S LOCATION SE 150 YDS FROM BOP

Comments:

## BACKGROUND

Source

Draw North Arrow

Observer

1400

NO SUN  
sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
3:00	0	○	○	○	○		2:30	30	○	○	○	○	
	1	○	○	○	○			31	○	○	○	○	
	2	○	○	○	○			32	○	○	○	○	
	3	○	○	○	○			33	○	○	○	○	
	4	○	○	○	○			34	○	○	○	○	
	5	○	○	○	○			35	○	○	○	○	
	6	○	○	○	○			36	○	○	○	○	
	7	○	○	○	○			37	○	○	○	○	
	8	○	○	○	○			38	○	○	○	○	
	9	○	○	○	○			39	○	○	○	○	
	10	○	○	○	○			40	○	○	○	○	
	11	○	○	○	○			41	○	○	○	○	
	12	○	○	○	○			42	○	○	○	○	
	13	○	○	○	○			43	○	○	○	○	
	14	○	○	○	○	TAP 26-3971		44	○	○	○	○	
3:15	15	○	○	○	○	END		45	○	○	○	○	
3:16	16	○	○	○	○	END V.E.O.		46	○	○	○	○	
	17							47	○	○	○	○	
	18							48	○	○	○	○	
	19							49	○	○	○	○	
	20							50	○	○	○	○	
	21					2:51		51	○	○	○	○	START BLOW
	22							52	○	○	○	○	26-3971
	23							53	○	○	○	○	
	24							54	○	○	○	○	
	25							55	○	○	○	○	
	26							56	○	○	○	○	
	27							57	○	○	○	○	
	28							58	○	○	○	○	
	29							59	○	○	○	○	

Page 2 of 2

## Visual Determination of Opacity

FACILITY # 2 BOP Shfg Roof  
 OBSERVER Paul Bush - Veolia Water  
 Wind Direction and Speed S 10-15 mph Sky Condition Seamy Temp: 41°F  
 Comments: 5' from BOP Roof ~150 yards

DATE

3-27-19

Start Time

12:42 pm

End Time

2:00 pm

LOCATION

MP USGLW

OBSERVER'S LOCATION

Source

Observer

140°

## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
1:00	0	0	0	0	0			30					
	1	0	0	0	0			31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0			34					
	5	0	0	0	0			35					
	6	0	0	0	0			36					
	7	0	0	0	0	Hmc1707		37					
	8	0	0	0	0			38					
	9	0	0	0	0			39					
	10	0	0	0	0			40					
	11	0	0	0	0			41					
	12	0	0	0	0		12:42	42	0	0	0	10	Start VEO
	13	0	0	0	0			43	10	10	5	5	E Roof May 25
	14	0	0	0	0			44	5	10	10	5	12:45 start
	15	0	0	0	0			45	5	5	5	5	25-2014
	16	0	0	0	0			46	5	5	5	5	
	17	0	0	0	0			47	5	10	5	5	
	18	0	0	0	0			48	5	5	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
	21	0	0	0	0			51	0	0	0	0	
	22	0	0	0	0			52	0	0	0	0	
	23	0	0	0	0			53	0	0	0	0	
	24	0	0	0	0			54	0	0	0	0	
	25	0	0	0	0			55	0	0	0	0	
	26	0	0	0	0			56	0	0	0	0	
	27	0	0	0	0			57	0	0	0	0	
	28	0	0	0	0			58	0	0	0	0	
	29	0	0	0	0			59	0	0	0	0	

pg 1 of 2

## Visual Determination of Opacity

DATE

3-27-19

Start Time

12:42 pm

End Time

2:00 pm

LOCATION

MP 455 GLW

FACILITY

#238 Shingle Roof

OBSERVER

Paul Bush - Peoria Water

Wind Direction and Speed

S10 - 15 mph

Sky Condition

Sunny

Temp:

81°F

Comments:

BACKGROUND

Source



Draw North Arrow

Observer

Sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	0	0	0	0	Tapped 12:00 pm 25-2015	1:30	30	0	0	0	0	
	1							31	0	0	0	0	
	2							32	0	0	0	0	
	3							33	0	10	10	5	TS reddish
	4							34	5	0	0	0	start blow
	5							35	0	0	0	0	25-2015
	6							36	0	0	0	0	
	7							37	0	0	0	0	
	8							38	0	0	0	0	
	9							39	0	0	0	0	
	10							40	0	0	0	0	
	11							41	0	0	0	0	
	12							42	0	0	0	0	
	13							43	0	0	0	0	
	14							44	0	0	0	0	
	15							45	0	0	0	0	
	16							46	0	0	0	0	
	17							47	0	0	0	0	
	18							48	0	0	0	0	
	19							49	0	0	0	0	
	20							50	0	0	0	0	
	21							51	0	0	0	0	
	22							52	0	0	0	0	
	23							53	0	0	0	0	
	24							54	0	0	0	0	
	25							55	0	0	0	0	
	26							56	5	5	5	0	W Reg Reddish
	27							57	0	0	0	0	
	28							58	0	0	0	0	
	29							59	0	0	0	0	

pg 2 of 2

## Visual Determination of Opacity

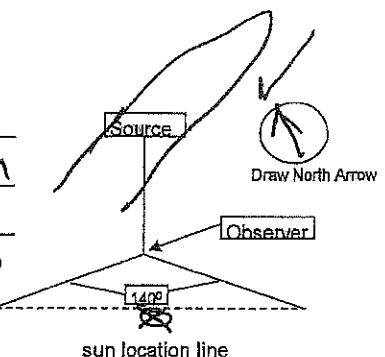
FACILITY # 2 BOP SHOP ROOF  
 OBSERVER P. Kuykendall - Vaseline Water  
 Wind Direction and Speed ENE 20-30 CLOUDY  
 Sky Condition Temp: 44°  
 Comments:

DATE 4- 11- 19

Start Time 12:55 P.M End Time 2:29 P.M

LOCATION M. P. USS GLW

OBSERVER'S LOCATION SE 140 YDS FROM BOP



## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
1:00	0	○	○	○	○			30					
	1	○	○	○	○			31					
	2	○	○	○	○			32					
	3	○	○	○	○			33					
	4	○	○	○	○			34					
	5	○	○	○	○			35					
	6	○	○	○	○			36					
	7	○	○	○	○			37					
	8	○	○	○	○			38					
	9	○	○	○	○			39					
	10	○	○	○	○			40					
	11	○	○	○	○			41					
	12	○	○	○	○			42					
	13	○	○	○	○			43					
	14	○	○	○	○			44					
	15	○	○	○	○			45					
	16	○	○	○	○			46					
	17	○	○	○	○			47					
	18	○	○	○	○			48					
	19	○	○	○	○			49					
	20	○	○	○	○			50					
	21	○	○	5	5			51					
1:22	22	○	○	○	○	START BLOW		52					
	23	○	○	○	○	26 - 4476		53					
	24	○	○	○	○			54					
	25	○	○	○	○		12:55	55	○	○	○	○	START V.E.O.,
	26	○	○	○	○			56	○	○	○	○	
	27	○	○	○	○			57	○	○	○	○	
	28	○	○	○	○			58	○	○	○	○	
	29	○	○	○	○		12:59	59	○	○	○	○	TAP 25-2270

## Visual Determination of Opacity

DATE 4-11-19

FACILITY # 2 BOP SHOP ROOF

Start Time 12:55 P.M.

End Time 2:29 P.M.

OBSERVER P. Kuykendall - Verdie Water

LOCATION N. P. USS GLW

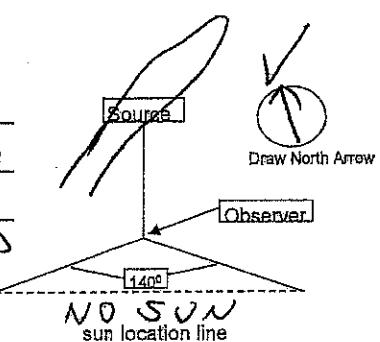
Wind Direction and Speed ENE 20-30 Sky Condition CLOUDY Temp: 46°

OBSERVER'S LOCATION SE 140 YDS FROM BOP

Comments:

## BACKGROUND

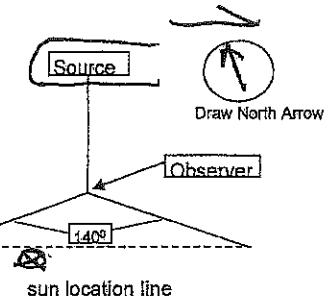
Hour	Min	Seconds				Comments	Hour	Min	Seconds				Comments
		0	15	30	45				0	15	30	45	
2:00	0	○	○	○	○		1:30	30	○	○	○	○	
	1	○	5	10	15			31	○	○	○	○	
2:02	2	15	5	○	○	START BLOW		32	○	○	○	○	
	3	○	○	○	○	25-2271		33	○	○	○	○	
	4	○	○	○	○			34	○	○	○	○	
	5	○	○	○	○			35	○	○	○	○	
	6	○	○	○	○			36	○	○	○	○	
	7	○	○	○	○			37	○	○	○	○	
	8	○	○	○	○			38	○	○	○	○	
	9	○	○	○	○			39	○	○	○	○	
	10	○	○	○	○			40	○	○	○	○	
	11	○	○	○	○			41	○	○	○	○	
	12	○	○	○	○			42	○	○	○	○	
	13	○	○	○	○			43	○	○	○	○	
	14	○	○	○	○			44	○	○	○	○	
	15	○	○	○	○		1:45	45	○	○	○	○	TAP 26-4476
	16	○	○	○	○			46	○	○	○	○	
	17	○	○	○	○			47	○	○	○	○	
	18	○	○	○	○			48	○	○	○	○	
	19	○	○	○	○			49	○	○	○	○	
	20	○	○	○	○			50	○	○	○	○	
	21	○	○	○	○			51	○	○	○	○	
	22	○	○	○	○			52	○	○	○	○	
	23	○	○	○	○			53	○	○	○	○	
	24	○	○	○	○			54	○	○	○	○	
	25	○	○	○	○			55	○	○	○	○	
	26	○	○	○	○			56	○	○	○	○	
	27	○	○	○	○			57	○	○	○	○	
	28	○	○	○	○			58	○	○	○	○	
2:29	29	○	○	○	○	TAP 25-2271		59	○	○	○	○	



## Visual Determination of Opacity

FACILITY #2 BOP SHOP ROOF  
 OBSERVER P. Krystyjohn - Vaseline Water  
 Wind Direction and Speed W S-10 Sky Condition SUNNY Temp: 56°  
 Comments:

DATE 4-24-19  
 Start Time 2:00 P.M. End Time 3:12 P.M.  
 LOCATION M.P. U.S.S. GILW  
 OBSERVER'S LOCATION SE 150 YDS FROM BOP



## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:05	0	0	0	0	0	TAP 26-4714	2:30	30	25	25	30	35	EAST ROOF
	1	0	0	0	0			31	25	25	30	15	REDDISH IN
	2	0	0	0	0			32	15	20	15	10	COLOR
	3	0	0	0	0			33	15	10	10	15	
	4	0	0	0	0			34	15	15	20	25	
	5	0	5	10	10	CENTER & EAST	2:35	35	30	25	25	15	TAP 25-2502
	6	5	5	5	0	SECTIONS GREY		36	15	15	15	20	
	7	0	0	0	0	IN COLOR		37	15	15	20	15	
	8	10	10	15	20			38	10	15	15	20	
2:09	9	15	15	10	10	START BLOW		39	15	15	25	10	
	10	5	5	5	5	25-2502		40	10	10	5	3	
	11	0	0	0	0			41	0	0	0	0	
	12	0	0	0	0			42	0	0	0	0	
	13	0	0	0	0			43	5	5	0	0	
	14	0	0	0	0			44	0	0	0	0	
	15	0	0	0	0			45	0	0	0	0	
	16	0	0	0	0		2:44	46	0	0	0	0	START BLOW
	17	0	0	0	0			47	0	0	0	0	26-4715
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
	21	0	0	0	0			51	0	0	0	0	
	22	0	0	0	0			52	0	0	0	0	
	23	0	0	0	0			53	0	0	0	0	
	24	0	0	0	0			54	0	0	0	0	
	25	0	0	0	0			55	0	0	0	0	
	26	0	0	0	0			56	0	0	0	0	
	27	0	0	5	5	EAST ROOF		57	0	0	0	0	
	28	10	10	15	15	REDDISH IN		58	0	0	0	0	
	29	15	25	20	15	COLOR		59	0	0	0	0	

Page 1 of 2

## Visual Determination of Opacity

FACILITY # 2 BOP SHOP ROOF

DATE 4-24-19

Start Time 2:00 P.M. End Time 3:12 P.M.

Source



Draw North Arrow

LOCATION

M. P. USS GLW

OBSERVER'S LOCATION

SE 150 YDS FROM BOP

Comments:

BACKGROUND

Observer

140°

sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
3:00	0	○	○	○	○			30					
	1	○	○	○	○			31					
	2	○	○	○	○			32					
	3	○	○	○	○			33					
	4	○	○	○	○			34					
	5	○	○	○	○			35					
	6	○	○	○	○			36					
	7	○	○	○	○			37					
	8	○	○	○	○			38					
	9	○	○	○	○			39					
	10	○	○	○	○			40					
3:11	11	○	○	○	○	TAP 26-4715		41					
	12	○	○	○	○	END V.E.O.		42					
	13							43					
	14							44					
	15							45					
	16							46					
	17							47					
	18							48					
	19							49					
	20							50					
	21							51					
	22							52					
	23							53					
	24							54					
	25							55					
	26							56					
	27							57					
	28							58					
	29							59					

Page 2 of 2

## Visual Determination of Opacity

DATE 5-9-18

FACILITY # 2 BOP SHOP ROOF

Start Time 12:40 PM End Time 1:56 P.M.

OBSERVER P. KuyStijn-Voglia Water

LOCATION M. P. USS GLW

Wind Direction and Speed S 15-25 Sky Condition OVERCAST Temp: 72°

OBSERVER'S LOCATION SE 150 YDS FROM BOP

Comments:

## BACKGROUND

Source

Draw North Arrow

Observer

NO SUN  
sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
1:00	0	○	○	○	○	START BLOW		30					
	1	○	○	○	○	26 - 4985		31					
	2	○	○	○	○			32					
	3	○	○	○	○			33					
	4	○	○	○	○			34					
	5	○	○	○	○			35					
	6	○	○	○	○			36					
	7	○	○	○	○			37					
	8	○	○	○	○			38					
	9	○	○	○	○			39					
	10	○	○	○	○		12:40	40	○	○	○	○	START V.E.O.
	11	○	○	○	○			41	○	○	○	○	
	12	○	○	○	○		12:42	42	○	○	○	○	TAP 25 - 2763
	13	○	○	○	○			43	○	○	○	○	
	14	○	○	○	○			44	○	○	○	○	
	15	○	○	○	○			45	○	○	○	○	
	16	○	○	○	○			46	○	○	○	○	
	17	○	○	○	○			47	○	○	○	○	
	18	○	○	○	○			48	○	○	○	○	
	19	○	○	○	○			49	○	○	○	○	
	20	○	○	○	○			50	○	○	○	○	
	21	○	○	○	○			51	○	○	○	○	
	22	○	○	○	○			52	○	○	○	○	
	23	○	○	○	○			53	○	○	○	○	
	24	○	○	○	○			54	○	○	○	○	
	25	○	○	○	○			55	○	○	○	○	
	26	○	○	○	○			56	○	○	○	○	
	27	○	○	○	5	CENTER SECTION		57	○	○	○	○	
	28	5	10	5	5	GREY IN COLOR		58	○	○	○	○	
	29	5	0	0	0			59	○	○	○	○	

Page 1 of 2

## Visual Determination of Opacity

DATE 5-9-19

FACILITY #2 BOP SHOP ROOF  
 OBSERVER P. Kuystryde - Vassian Water  
 Wind Direction and Speed 515-25 Sky Condition OVERCAST Temp: 72°  
 Comments:

Start Time 12:40 P.M. End Time 1:56 P.M.

LOCATION M. D. USS GLW

OBSERVER'S LOCATION SE 150 YDS FROM BOP

Source



Observer

NO SUN  
sun location line

## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0						1:30	30	○	○	○	○	
	1						1:31	31	○	○	○	○	START BLOW
	2							32	○	○	○	○	25-2764
	3							33	○	○	○	○	
	4						1:34	34	○	○	○	○	TAP 26-4985
	5							35	○	○	○	○	
	6							36	○	○	○	○	
	7							37	○	○	○	○	
	8							38	○	○	○	○	
	9							39	○	○	○	○	
	10							40	○	○	○	○	
	11							41	○	○	○	○	
	12							42	○	○	○	○	
	13							43	○	○	○	○	
	14							44	○	○	○	○	
	15							45	○	○	○	○	
	16							46	○	○	○	○	
	17							47	○	○	○	○	
	18							48	○	○	○	○	
	19							49	○	○	○	○	
	20							50	○	○	○	○	
	21							51	○	○	○	○	
	22							52	○	○	○	○	
	23							53	○	○	○	○	
	24							54	○	○	○	○	
	25							1:55	55	○	○	○	TAP 25-2764
	26							1:56	56	○	○	○	END V.E.O.
	27								57				
	28								58				
	29								59				

Page 2 of 2

## Visual Determination of Opacity

DATE 5-14-19

FACILITY #2 BOP SHOP ROOF

Start Time 9:50 AM End Time 10:30

OBSERVER D. Kuykendall - Vassia Water

LOCATION M.P. USS GLW

Wind Direction and Speed WNW 5-10 Sky Condition SUNNY Temp: 55°

OBSERVER'S LOCATION NE - 140 YDS FROM BOP

Comments: ESP STK TESTING, RUN #1

BACKGROUND

Draw North Arrow

Observer

140°

sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
09	00	0	0	0	0			30					
	1	0	0	0	0			31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0			34					
10	05	0	0	0	0	START BLOW		35					
	6	0	0	0	0	25-2859		36					
	7	0	0	0	0			37					
	8	0	0	0	0			38					
	9	0	0	0	0			39					
	10	0	0	0	0			40					
	11	0	0	0	0			41					
	12	0	0	0	0			42					
	13	0	0	0	0			43					
	14	0	0	0	0			44					
	15	0	0	0	0			45					
	16	0	0	0	0			46					
	17	0	0	0	0			47					
	18	0	0	0	0			48					
	19	0	0	0	0			49					
	20	0	0	0	0		9:50	50	0	0	0	0	START V.E.O.
	21	0	0	0	0			51	0	0	0	0	
	22	0	0	0	0		9:52	52	0	0	0	0	TAP ZL-5073
	23	0	0	0	0			53	0	0	0	0	
	24	0	0	0	0			54	0	0	0	0	
	25	0	0	0	0			55	0	0	0	0	
	26	0	0	0	0			56	0	0	0	0	
	27	0	0	0	0			57	0	0	0	0	
10	28	0	0	0	0	TAP ZL-5073		58	0	0	0	0	
10:30	29	0	0	0	0	END V.E.O.		59	0	0	0	0	

Page 1 of 1

## Visual Determination of Opacity

DATE

5-14-19

Start Time

1:10 P.M.

End Time

2:35 PM

LOCATION

M.P. USS GLW

FACILITY

#2 BOP SHOP ROOF

OBSERVER

P. Kuydijohn - Vodria Water

Wind Direction and Speed

WNW 10-15

Sky Condition

SUNNY

Temp:

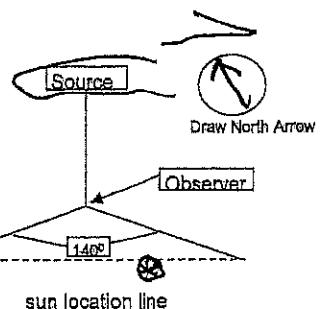
63°

OBSERVER'S LOCATION

SE 150 YDS FROM BOP

Comments: ESP STK TESTING, RUN #2

BACKGROUND

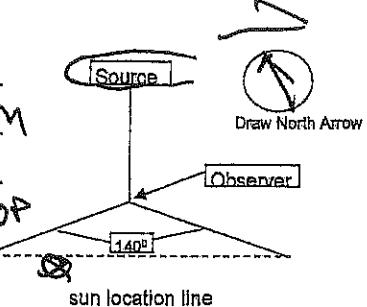


HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
	0						1:30	30	○	○	○	○	
	1							31	○	○	○	○	
	2							32	○	○	○	○	
	3							33	○	○	○	○	
	4							34	○	○	○	○	
	5							35	○	○	○	○	
	6							36	○	○	○	○	
	7							37	○	○	○	○	
	8							38	○	○	○	○	
	9							39	○	○	○	○	
1:10	10	○	○	○	○	START V.E.O.		40	○	○	○	○	
	11	○	○	○	○			41	○	○	○	○	
	12	○	○	○	○			42	○	○	○	○	
	13	○	○	○	○			43	○	○	○	○	
	14	○	○	○	○			44	○	○	○	○	
1:15	15	○	○	○	○	TAP 25-2862		45	○	○	○	○	
	16	○	○	○	○			46	○	○	○	○	
	17	○	○	○	○			47	○	○	○	○	
	18	○	○	○	○			48	○	○	○	○	
	19	○	○	○	○			49	○	○	○	○	
	20	○	○	○	○			50	○	○	○	○	
	21	○	○	○	○			51	○	○	○	○	
	22	○	○	○	○			52	○	○	○	○	
	23	○	○	○	○			53	○	○	○	○	
	24	○	○	○	○			54	○	○	○	○	
	25	○	○	○	○			55	○	○	○	○	
	26	○	○	○	○			56	○	○	○	○	
	27	○	○	○	○			57	○	○	○	○	
	28	○	○	○	○			58	○	○	○	○	
	29	○	○	○	○			59	○	○	○	○	

## Visual Determination of Opacity

FACILITY #2 BOP SHOP ROOF  
 OBSERVER P. Thyngstjoh - Vesia wata  
 Wind Direction and Speed WNW 10-15 P.CLOUDY  
 Sky Condition Temp: 67°  
 Comments: ESP STRK TESTING, RUN #3  
 BACKGROUND

DATE 5-14-19  
 Start Time 4:10 P.M. End Time 5:05 P.M.  
 LOCATION M.P. USS GLW  
 OBSERVER'S LOCATION SE 150 YDS FROM BOP



Hour	Min	Seconds				Comments	Hour	Min	Seconds				Comments
		0	15	30	45				0	15	30	45	
	0						4:30	30	○	○	○	○	
	1							31	○	○	○	○	
	2						4:32	32	○	○	○	○	START BLOW
	3							33	○	○	○	○	25-2866
	4							34	○	○	○	○	
	5							35	○	○	○	○	
	6							36	○	○	○	○	
	7							37	○	○	○	○	
	8							38	○	○	○	○	
	9							39	○	○	○	○	
4:10	10	○	○	○	○	START V.E.O.		40	○	○	○	○	
	11	○	○	○	○			41	○	○	○	○	
4:12	12	○	○	○	○	TAP 25-2865		42	○	○	○	○	
	13	○	○	○	○			43	○	○	○	○	
	14	○	○	○	○			44	○	○	○	○	
	15	○	○	○	○			45	○	○	○	○	
	16	○	○	○	○			46	○	○	○	○	
	17	○	○	○	○			47	○	○	○	○	
	18	○	○	○	○			48	○	○	○	○	
	19	○	○	○	○			49	○	○	○	○	
	20	○	○	○	○			50	○	○	○	○	
	21	○	○	○	○			51	○	○	○	○	
	22	○	○	○	○			52	○	○	○	○	
	23	○	○	○	○			53	○	○	○	○	
	24	○	○	○	○			54	○	○	○	○	
	25	○	○	○	○			55	○	○	○	○	
	26	○	○	○	○			56	○	○	○	○	
	27	○	○	○	○			57	○	○	○	○	
	28	○	○	○	○			58	○	○	○	○	
	29	○	○	○	○			59	○	○	○	○	

Page 1 of 2

## Visual Determination of Opacity

DATE 5-14-19

FACILITY #2 BOP SHOP ROOF

Start Time 1:10 P.M.

End Time 2:35 P.M.

OBSERVER D. Kuykendall - Vessel Water

LOCATION m.p. USS GLW

Wind Direction and Speed WNW 10-15 Sky Condition SUNNY Temp: 65°

OBSERVER'S LOCATION SE-150 YDS FROM BOP

Comments: ESP STK TEST, RUN #2

BACKGROUND

Source



Draw North Arrow

Observer

1400

sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	0	0	0	0		2:30	30	0	0	0	0	
	1	0	0	0	0		2:31	31	0	0	0	0	TAP 25 - 2863
	2	0	0	0	0			32	0	0	0	0	
	3	0	0	0	0			33	0	0	0	0	
	4	0	0	0	0			34	0	0	0	0	
	5	0	10	10	10	CENTER & EAST	2:35	35	0	0	0	0	END V.E.O.
	6	5	5	5	10	GREY IN COLOR		36					
	7	10	5	0	0			37					
2:08	8	0	0	0	0	START BLOW		38					
	9	0	0	0	0	25-2863		39					
	10	0	0	0	0			40					
	11	0	0	0	0			41					
	12	0	0	0	0			42					
	13	0	0	0	0			43					
	14	0	0	0	0			44					
	15	0	0	0	0			45					
	16	0	0	0	0			46					
	17	0	0	0	0			47					
	18	0	0	0	0			48					
	19	0	0	0	0			49					
	20	0	0	0	0			50					
	21	0	0	0	0			51					
	22	0	0	0	0			52					
	23	0	0	0	0			53					
	24	0	0	0	0			54					
	25	0	0	0	0			55					
	26	0	0	0	0			56					
	27	0	0	0	0			57					
	28	0	0	0	0			58					
	29	0	0	0	0			59					

Page 2 of 2

## Visual Determination of Opacity

DATE 5-14-19

FACILITY #2 BOP SHOP ROOF

Start Time 4:10 PM

End Time

5:05 PM

Source



Draw North Arrow

OBSERVER P. Kuykendall - Vodice Water

LOCATION

M. P. USS GLW

Wind Direction and Speed WNW 10-15

Sky Condition P. CLOUDY

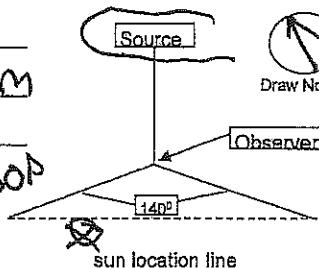
Temp: 67°

OBSERVER'S LOCATION

SE 150 YDS FROM BOP

Comments: ESP STK TESTING, RUN #3

BACKGROUND



HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
5:00	0	0	0	0	0			30					
5:01	1	0	0	0	0	TAP 25-2866		31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0			34					
5:05	5	0	0	0	0	END V.E.D.		35					
	6							36					
	7							37					
	8							38					
	9							39					
	10							40					
	11							41					
	12							42					
	13							43					
	14							44					
	15							45					
	16							46					
	17							47					
	18							48					
	19							49					
	20							50					
	21							51					
	22							52					
	23							53					
	24							54					
	25							55					
	26							56					
	27							57					
	28							58					
	29							59					



## Visual Determination of Opacity

FACILITY # 2BOP Shop Roof  
 OBSERVER Paul Bush - Vessel water  
 Wind Direction and Speed SSW 10-25 mph Sky Condition Cloudy Temp: 66°F  
 Comments: SE from Bob ~ 150 yards

DATE 5-23-19Start Time 11:10 AmEnd Time 12:16 pm

Source



Drew North Arrow

Observer

sun location line

## BACKGROUND

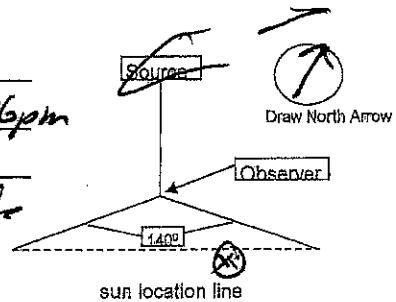
HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
0							11:30	30	0	0	0	0	71°F
1								31	0	0	0	0	<i>Top 25-3003</i>
2								32	0	0	0	0	<i>11:31 Am</i>
3								33	0	0	0	0	
4								34	0	0	0	0	
5								35	0	0	0	0	
6								36	0	0	0	0	
7								37	0	0	0	0	
8								38	0	0	0	0	
9						<i>265 223 Top</i>		39	0	0	0	0	
10	0	0	0	0		<i>Start Blow</i>		40	0	0	0	0	
11	0	0	0	0		<i>25-3003</i>		41	0	0	0	0	
12	0	0	0	0		<i>11:10 AM</i>		42	0	0	0	0	
13	0	0	0	0				43	0	0	0	0	
14	0	0	0	0				44	0	0	0	0	
15	0	0	0	0				45	0	0	0	0	
16	0	0	0	0				46	0	0	0	0	
17	0	0	0	0				47	0	0	0	0	
18	0	0	0	0			11:48	48	0	0	0	0	<i>Start Blow</i>
19	0	0	0	0				49	0	0	0	0	<i>26-5224</i>
20	0	0	0	0				50	0	0	0	0	
21	0	0	0	0				51	0	0	0	0	
22	0	0	0	0				52	0	0	0	0	
23	0	0	0	0				53	0	0	0	0	
24	0	0	0	0				54	0	0	0	0	
25	0	0	0	0				55	0	5	10	5	<i>Centr Greyish</i>
26	0	0	0	0				56	5	5	0	0	<i>Noon 26</i>
27	0	0	0	0				57	5	5	5	0	
28	0	0	0	0				58	0	0	0	0	
29	0	0	0	0				59	0	0	0	0	

pg 1 of 2

## Visual Determination of Opacity

FACILITY #2 BOP Shop Roof  
 OBSERVER Paul Bush - Veolia Water  
 Wind Direction and Speed SW 10-25 mph  
 Sky Condition Cloudy  
 Temp: 71°F  
 Comments:

DATE 5-23-19  
 Start Time 11:10 AM End Time 12:16 PM  
 LOCATION USS GLW MP  
 OBSERVER'S LOCATION S E from BOP ~150 yards



## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
12:00	0	0	0	0	0			30					
	1	0	0	0	0			31					
	2	0	0	0	0			32					
	3	0	0	0	0			33					
	4	0	0	0	0			34					
	5	0	0	0	0			35					
	6	0	0	0	0			36					
	7	0	0	0	0			37					
	8	0	0	0	10	Ctr. Near 26-5224		38					
	9	10	0	0	0			39					
	10	0	0	0	0			40					
	11	0	0	0	0			41					
	12	0	0	0	0			42					
	13	0	0	0	0			43					
	14	0	0	0	0			44					
	15	0	0	0	0			45					
12:16	16	0	0	0	0	Top 26-5224		46					
	17					End VEO 12:16		47					
	18							48					
	19							49					
	20							50					
	21							51					
	22							52					
	23							53					
	24							54					
	25							55					
	26							56					
	27							57					
	28							58					
	29							59					

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## Visual Determination of Opacity

DATE 6-4-19

FACILITY #2 BOP SHOP ROOF

Start Time 1:30 P.M. End Time 3:02 PM

OBSERVER P. Kuykendall - Vicksburg Water

LOCATION M.P. VSS GLW

Wind Direction and Speed SSW 10-15

Sky Condition CLOUDY Temp: 70°

OBSERVER'S LOCATION

SE 150 YDS FROM BOP

Comments:

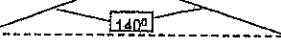
## BACKGROUND

Source



Draw North Arrow

Observer



140

NO SUN

sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
2:00	0	○	○	○	○		1:30	30	○	○	○	○	
	1	○	○	○	○			31	○	○	○	○	
	2	○	○	○	○			32	○	○	○	○	
	3	○	○	○	○			33	○	○	○	○	
	4	○	○	○	○		1:34	34	○	○	○	○	TAP 26-5442
	5	○	○	○	○			35	○	○	○	○	
	6	○	○	○	○			36	○	○	10	10	EAST ROOF
	7	○	○	○	○			37	10	5	○	○	GREY in COLOR
2:08	8	○	○	○	○	TAP 25-3202		38	○	○	○	○	
	9	○	○	○	○		1:39	39	○	○	○	○	START BLOW
	10	○	○	○	○			40	○	○	○	○	25-3202
	11	○	○	○	○			41	○	○	○	○	
	12	○	○	○	○			42	○	○	○	○	
	13	○	○	○	○			43	○	○	○	○	
	14	○	○	○	○			44	○	○	○	○	
	15	○	○	○	○			45	○	○	○	○	
	16	○	○	○	○			46	○	○	○	6	
	17	○	○	○	○			47	○	10	5	○	
	18	○	○	○	○			48	○	○	○	6	
	19	○	○	○	○			49	○	○	○	○	
	20	○	○	○	○			50	○	○	○	○	
	21	○	○	○	○			51	○	○	○	○	
	22	○	○	5	10	CENTER SECTION		52	○	○	○	○	
	23	5	10	10	0	GREY in COLOR		53	○	○	○	○	
	24	5	0	5	10			54	○	○	○	○	
	25	15	5	10	15			55	○	○	○	○	
	26	10	10	5	5			56	○	○	○	○	
	27	○	○	○	○			57	○	○	○	○	
	28	○	○	○	○			58	○	○	○	○	
	29	○	○	○	○			59	○	○	○	○	

Page 1 of 2

## Visual Determination of Opacity

DATE 6-4-19

FACILITY #2 BOP SHOP ROOF

Start Time 1:30 PM

End Time 3:02 PM

OBSERVER P. Kuykendall - Voodia Water

LOCATION M.P. USS GLW

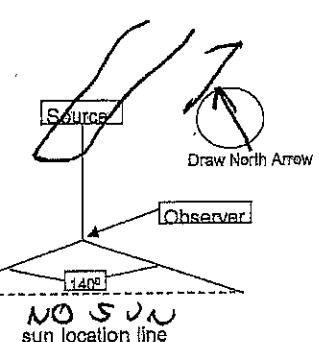
Wind Direction and Speed SSW 10.15 Sky Condition Cloudy Temp: 70°

OBSERVER'S LOCATION SE 150 YDS FROM BOP

Comments:

## BACKGROUND

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
3:00	0	○	○	○	○		2:30	30	○	○	○	○	
3:01	1	○	○	○	○	TAP 26-5443	31	○	○	○	○	○	
3:02	2	○	○	○	○	END V.E.D.	32	○	○	○	○	○	
	3						33	○	○	○	○	○	
	4						34	○	○	○	○	○	
	5						2:35	35	○	○	○	○	START BLOW
	6						36	○	○	○	○	○	26-5443
	7						37	○	○	○	○	○	
	8						38	○	○	○	○	○	
	9						39	○	○	○	○	○	
	10						40	○	○	○	○	○	
	11						41	○	○	○	○	○	
	12						42	○	○	○	○	○	
	13						43	○	○	○	○	○	
	14						44	○	○	○	○	○	
	15						45	○	○	○	5		
	16						46	○	○	○	○		
	17						47	○	○	○	○		
	18						48	○	○	○	○		
	19						49	○	○	○	○		
	20						50	○	○	○	○		
	21						51	○	○	○	○		
	22						52	○	○	○	○		
	23						53	○	○	○	○		
	24						54	○	○	○	○		
	25						55	○	○	○	○		
	26						56	○	○	○	○		
	27						57	○	○	○	○		
	28						58	○	○	○	○		
	29						59	○	○	○	○		



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## Visual Determination of Opacity

DATE

6-20-19

FACILITY #2B08 Shop Roof

Start Time

1:00pm

End Time

1:55pm

Source



Draw North Arrow

OBSERVER Paul Bush - Verdia Water

LOCATION

MP USSGLW

Wind Direction and Speed NE 5-10 mph

Sky Condition overcast

Temp:

63°F

OBSERVER'S LOCATION

SE from B08 1/50 yards

Comments:

BACKGROUND

Observer

1408

No Sun  
sun location line

HOUR	MIN	SECONDS				Comments	HOUR	MIN	SECONDS				Comments
		0	15	30	45				0	15	30	45	
1:00	0	0	0	0	0	Start VEO	1:30	30	0	0	0	0	Start Blow
	1	0	0	0	0	Top 26-5620		31	0	0	0	0	26-5621
	2	0	0	0	0	0102		32	0	0	0	0	
	3	0	0	0	0			33	0	0	0	0	
	4	0	0	0	0			34	0	0	0	0	
	5	0	0	0	0			35	0	0	0	0	
	6	0	0	0	0			36	0	0	0	0	
	7	0	0	0	0			37	0	0	0	0	
	8	0	0	0	0			38	0	0	0	0	
	9	0	0	0	0			39	0	0	0	0	
	10	0	0	0	0			40	0	0	0	0	
	11	0	0	0	0			41	0	0	0	0	
	12	0	0	0	0			42	0	0	0	0	
	13	0	0	0	0			43	0	0	0	0	
	14	0	0	0	0			44	0	0	0	0	
	15	0	0	0	0			45	0	0	0	0	
	16	0	0	0	0			46	0	5	5	5	general Roof greyish
	17	0	0	0	0			47	5	5	5	0	
	18	0	0	0	0			48	0	0	0	0	
	19	0	0	0	0			49	0	0	0	0	
	20	0	0	0	0			50	0	0	0	0	
	21	0	5	5	5	greyish		51	0	0	0	0	
	22	0	0	0	0	E Roof		52	0	-	-	-	
	23	0	0	0	0			53	0	0	-	-	
	24	0	0	0	0			54	-	0	0	0	
	25	0	0	0	0		1:55	55	0	0	0	0	End VEO
	26	0	0	0	0			56	0	0	0	0	26-5621
	27	0	0	0	0			57					Top @ 1:55pm
	28	0	0	0	0			58					
	29	0	0	0	0			59					

(--) Steam interference